

being unpatentable over Shin in view of the mistakenly characterized "admitted prior art of record" and further in view of Kinoshita (U.S. Patent No. 5,086,728).

Before treating the outstanding art rejections, it is again believed that a brief review of the present invention would be helpful. In this regard, the brief review of the present invention contained in the response filed on July 18, 2001, is repeated again as follows:

[T]he present invention is directed to an image forming apparatus having a developing device with a conveyor or member that conveys one-component developer to a closely spaced latent image bearing member to perform a two-level developing operation, which operation is defined in the specification to be "a developing operation according to two-level binary image density and formation for each pixel." See page 11, lines 1-6 of the specification for further details. As further described on this page, to overcome various problems, one aspect of the present invention involves a developing condition which is set such that the amount of toner adhering to an image area on a photoconductive surface portion of the latent image bearing member is saturated. Accordingly, even if image potential is increased above a threshold value, the saturated amount of toner does not increase.

Other aspects of the present invention include ensuring that the amount of a one component developer adhering to the conveyor surface portion is about  $0.5 \text{ mg/cm}^2$ , and that the absolute value of the predetermined amount of charge of the one-component developer is equal to or less than about  $10 \text{ } \mu\text{C/g}$

In yet other aspects of the present invention, the adhering amount of the one-component developer on the conveyor is formed by a thin layer forming device so as to be from about 1 to about 1.5 times the thickness of the diameter of toner particles in the one-component developer and the movement of one-component developer from the conveyor member to a development region on the latent image bearing member is across a gap between the conveyor surface portion and the opposed photoconductive surface portion that is equal to or less than about  $150 \text{ } \mu\text{m}$ .

Other aspects also include applying a developing bias voltage to the conveyor member from a voltage source that is made up of an AC voltage superimposed on a DC voltage. The AC voltage has a peak-to-peak voltage value of from 600 to 1200 volts and a frequency from 2 to 6 kHz.

Another aspect includes using a thin layer forming device that protrudes from a holder with a length of about 10-15 mm and that contacts the developer bearing member with a contact pressure of about 10 to about 150 g/cm. The conveyor member is given a surface roughness of about 1 to about  $4 \text{ } \mu\text{m RZ}$ .

Each of the aspects noted above produce beneficial results discussed in the specification, for example, relative to the comparative examples given by Figures 1, 3, 4, and 5.

With respect to the outstanding rejection of Claims 1, 2, 15, 16, and 29 under 35 U.S.C. §103(a) as being unpatentable over Ono in view of what the Action mistakenly characterizes as “admitted prior art of record,” it is noted that the PTO itself recognizes that unless it can be shown that each and every limitation of Claims 1, 2, 15, 16, and 29 would have been obvious, no *prima facie* case has been established and the rejection is improper. See MPEP 2143.03.

The last response noted particular subject matter recited by Claims 1, 2, 15, 16, and 29 as not taught by Ono as follows:

[T]here is also no indication where it is believed that [Ono] teaches the voltage source that must apply the developing bias voltage to the conveyor member when this two-level developing operation is performed so as to move at least some of the one-component developer with a predetermined charge adhering to the conveyor surface portion to the photoconductive surface portion to form saturated amounts of the one-component developer, which are limitations also appearing in Claim 1. The further limitations of Claim 1 dealing with the saturated amounts not changing with increasing the image potential above a predetermined threshold value have also not been treated in terms of indicating where this teaching appears in Ono.

Page 3 of the outstanding Action now admits that no voltage source is shown by Ono. Moreover, the top of page 8 of the outstanding Action admits that Ono has no express teaching or suggestion that indicates to the artisan that any particular developing bias is to be applied by this voltage source not shown by Ono.

Even though no concrete evidence has been produced showing some reason why the artisan would have been led to use a voltage source having a bias voltage that could apply a developing bias voltage so as to form saturated amounts of any developer on the photoconductive surface of Ono, the outstanding Action nevertheless suggests that because a developing bias voltage must be present relative to the device of Ono, the mere possibility of

that applied voltage being sufficient to achieve this saturated developer result somehow can be translated into obviousness. However, it is clearly improper to base a rejection under 35 U.S.C. §103 upon such speculation and unfounded assumptions. See In re Warner, 154 USPQ 173, 178 (CCPA 1967) as follows:

A rejection based on section 103 clearly must rest on a factual basis, and these facts must be interpreted without hindsight reconstruction of the invention from the prior art. In making this evaluation, all facts must be considered. The Patent Office has the initial duty of supplying the factual basis for its rejection. It may not, because it may doubt that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in its factual basis.

The need for factual evidence has been recently reemphasized by the PTO reviewing court, see In re Zurko, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001) as follows:

With respect to core factual findings in a determination of patentability, however, the [PTO] cannot simply reach conclusions based on its own understanding or experience — or on its assessment of what would be basic knowledge or common sense. Rather, the [PTO] must point to some concrete evidence in the record in support of these findings. To hold otherwise would render the process of appellate review for substantial evidence on the record a meaningless exercise. [Emphasis added, footnote omitted.]

An even more recent decision by this PTO reviewing court in In re Lee, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) has emphasized the need for both examiners and the board to provide evidence, not mere unsupported opinion, as follows:

Judicial review of a Board decision denying an application for patent is thus founded on the obligation of the agency to make the necessary findings and to provide an administrative record showing the evidence on which the findings are based, accompanied by the agencies reasoning in reaching its conclusions.

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“The factual inquiry whether to combine [reference teachings] must be thorough and searching.” It must be based on objective evidence of record. This precedent has been reinforced in myriad decisions and cannot be dispensed with.

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With respect to [the] application, neither the examiner nor the Board adequately supported the selection and combination of ... references to render obvious that which [the application claimed]. The examiner's conclusory statements ... do not adequately address the issue of motivation to combine. This factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher."

In addition, the mere subjective belief that a bias voltage being applied might possibly be of high enough value to achieve the saturated developer claimed also does not qualify as an inherent result. This is because the doctrine of inherency requires the absolute certainty that something will happen, not merely a possibility or even a probability that something may occur. See In re Robertson, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) and In re Oelrich, 212 USPQ 323, 326 (CCPA 1981).

With further regard to the outstanding rejection of Claims 1, 2, 15, 16, and 29 under 35 U.S.C. §103(a) as being unpatentable over Ono "in view of admitted prior art of record," it is further noted that the assertion that page 1, lines 12-18 admit that the "two-level developing operation" of these claims is "prior art" is completely without merit. All that the sentence of page 1, lines 12-14, states is the applicants' belief that forming images on the basis of digital data instead of analog image data has been in increasing demand in JAPAN. No knowledge as to what is known in the U.S.A. has been set forth. The mere indication as to knowledge in JAPAN does not qualify as "prior art" as to any portion of 35 U.S.C. §102 that defines what is "prior art" in this country. In this regard, the case law as to what constitutes an actual "prior art" admission is clearly set forth by In re Nomiya, 184 USPQ 607, 611-12 (CCPA 1975) as requiring an actual admission of "prior art" status and cautioning that "[i]t is necessary to consider everything appellants have said about what is

prior art to determine the exact scope of their admission.” Here, there is no label of “prior art” that is attached to any figure and no section entitled "Description of the Prior Art" as there was in Nomiya.

Similarly, the sentences of page 1, lines 14-16 and 16-18 are only statements indicating the applicants’ belief as to different types of digital apparatus that are known in Japan, not statements as to what is known in this country.

Furthermore, even if it could be reasonably said that page 1, lines 12-18, of the specification admit that the use of two level digital image data and the use of multiple levels of digital image data are both actually “prior art,” which is clearly not the case, the outstanding Office Action would still lack a *prima facie* case of obviousness because no reasoning is presented as to why the artisan would have been led to choose a two level digital image operation instead of a multiple level one. Thus, even if the two level digital image operation could be established to be known, mere knowledge alone does not translate into an adequate showing of the requisite motivation sufficient to establish a *prima facie* case of obviousness. See In re Kotzab, 55 USPQ2d 1313, 1316-17 (Fed. Cir. 2000) as follows:

Most if not all inventions arise from a combination of old elements. *See In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457 (Fed. Cir. 1998). Thus, every element of a claimed invention may often be found in the prior art. *See id.* However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. *See id.* Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant. *See In re Dance*, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998); *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). Even when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference. *See B.F. Goodrich Co. v. Aircraft Breaking Sys. Corp.*, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996).

Besides the above-noted failings, it is again pointed out that failing to set forth any reasonable basis to make the proposed modification further demonstrates the failure to establish a *prima facie* case of obviousness. In this last regard, and as noted in the last response as to In re Dembiczak, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) and above, as to In re Kotzab, the PTO must establish some reasonable prior art based motivation or teaching to modify Ono. Page 4 of the outstanding Action appears to rely on the abstract purpose of lines 1-5 of Ono as to obtaining “a high grade image without fogging.” Missing, however, is the presentation of a reason why the artisan would have believed that the device being proposed by Ono would fall short of achieving its stated “purpose” of obtaining “a high grade image without fogging,” much less why this artisan would have a prior art based reason to believe that the result of obtaining “a high grade image without fogging” would have been easier to achieve using the “two-level developing operation” of independent Claims 1, 15, and 29, instead of a multiple level developing operation or an analog one.

In this respect, the PTO reviewing court further recently emphasized (in In re Kotzab, at 55 USPQ2d 1317) the need for the PTO to view reference teachings “in the context of the teaching of the entire reference” and not in the abstract. Further note In re Roufett, 47 USPQ2d 1453, 1458 (Fed. Cir. 1998) setting forth that when the PTO fails “to explain the specific understanding or principle within the knowledge of a skilled artisan that would motivate one with no knowledge of [applicant’s] invention to make the combination,” the inference that must be made is that of an improper hindsight reconstruction.

Furthermore, as noted in In re Regel, 188 USPQ 136, 139 n.5 (CCPA 1975) “there must be some logical reason apparent from positive, concrete evidence of record which justifies a combination of primary and second references.” The reason offered in the outstanding Action is not logical as noted above.

Accordingly, as Ono and what has been misstated to be the “admitted prior art of record,” have not been shown to either alone or in any proper combination suggest the subject matter of Claims 1, 2, 15, 16, and 29, there has been no *prima facie* case of obviousness established and the rejection of these claims is respectfully traversed.

Turning to the rejection of Claims 1, 3, 5, 7, 12, 14, 15, 17, 19, 21, 26, 28, and 29 as being unpatentable over Shin in view of the once again mistakenly asserted “admitted prior art of record,” it is again noted that this rejection fails to establish any reasonable basis why the artisan would modify Shin because of this asserted “admitted prior art of record,” much less a reasonable prior art based reason or concrete evidence establishing why the artisan would have been led to use a voltage source having a bias voltage that could apply a developing bias voltage so as to form saturated amounts of any developer on the photoconductive surface of Shin. Instead of evidence, the PTO (in the paragraph bridging pages 7 and 8 of the outstanding Action) once again incorrectly alleges that because a developing bias voltage must be present relative to the device of Shin, the mere possibility of that applied voltage being sufficient to achieve the claimed saturated developer result somehow can be translated into obviousness. However, it is clearly improper to base a rejection under 35 U.S.C. §103 upon such speculation and unfounded assumptions as noted above relative to In re Warner. It is further clearly improper to assert inherency as noted above relative to In re Robertson and In re Oelrich. Once again no *prima facie* case of obviousness has been established.

While the outstanding Action does reference a particular part of Shin being relied upon relative to the specific subject matter of Claims 7 and 21 (as to the gap between the development region and the conveyor surface being less than or about equal to 150  $\mu\text{m}$ ), the allegation of obviousness of subject matter added by a dependent claim is not determinative

as to the obviousness of the subject matter in common with the independent claims. Thus, to whatever extent that Shin teaches a gap of 50-200  $\mu\text{m}$ , the subject matter of Claims 7 and 21 also includes that of each of the respective base Claims 1 and 15 that have not been adequately addressed, all as noted above.

In addition to the above noted limitations of Claim 1 and 15 that are also included in dependent Claims 3, 7, 17, 19, and 21, these claims and independent Claims 14, 26, and 28 add further features that are not taught or suggested by either Shin or the misstated “admitted prior art of record” considered alone or together in any proper combination. For example, there is no reasonable teaching in Shin of using the toner charge of 10  $\mu\text{C/g}$  or below that is added by dependent Claims 3 to Claim 1 subject matter as well as being specified by independent Claims 14 and 28 and being added by dependent Claims 17 to Claim 15 subject matter. With respect to the relied upon teachings of col. 3, lines 12-14 of Shin, Shin makes it clear that a toner charge of 10  $\mu\text{C/g}$  or below is inferior because a smooth image cannot be obtained due to tonal gradation. Note the full teaching of col. 3, lines 11-15. It is also noted that this amount of charge applies to the use of a developing roller that is a hard roller and not the soft roller used with Shin.

Further lacking from this rejection of Claims 1, 3, 5, 7, 12, 14, 15, 17, 19, 21, 26, 28, and 29 as being unpatentable over Shin in view of the asserted “admitted prior art of record” is the required showing as to the above-noted reasonable motivation. In this regard, what Shin states at col. 4, lines 10-14 is what his invention already achieves which cannot be considered to logically serve to motivate some further undefined modification thereto. Note again In re Regel, In re Kotzab, and In re Roufett. Also missing is the above-noted prior art based teaching that the use of two-level developing will contribute to improving both solid and line images or that there is some reason to expect that two-level is better than multiple



levels. Accordingly, this rejection is further traversed as lacking any reasonable prior art taught basis for suggesting the proposed modification.

Turning to the rejection of Claims 4, 6, 8-11, 13, 18, 20, 22-25, and 27, it is first noted that Kinoshita cures none of the deficiencies noted above as to Shin. Moreover, and as previously noted to the PTO which has improperly ignored these points, the attempt to take the thin layer forming device of Kinoshita that contacts the developer bearing member thereof with the contact pressure specified at col. 6, line 65 - col. 7, line 3 out of context ignores that these teachings apply to a developing sleeve that is of the hard type which is not the subject matter of concern to Shin. See again In re Kotzab, at 55 USPQ2d 1317 setting forth the need for the PTO to view reference teachings “in the context of the teaching of the entire reference” and not in the abstract. Further note In re Roufett, 47 USPQ2d 1453, 1458 (Fed. Cir. 1998) setting forth that when the PTO fails “to explain the specific understanding or principle within the knowledge of a skilled artisan that would motivate one with no knowledge of [applicant’s] invention to make the combination,” the inference that must be made is that of an improper hindsight reconstruction.

In both of these regards, it is again noted that Shin differentiates hard and soft rollers at col. 3, lines 8-67, and notes the superiority of the soft roller and that this superior soft roller is to be used with his device. Note, for example, col. 4, lines 10-14 of Shin. Once more lacking is any reasonable basis why the pressure used to contact the hard roller of Kinoshita would be reasonably suggested as a modification to contact the soft roller of Shin. Accordingly, a *prima facie* case of obviousness is again lacking.

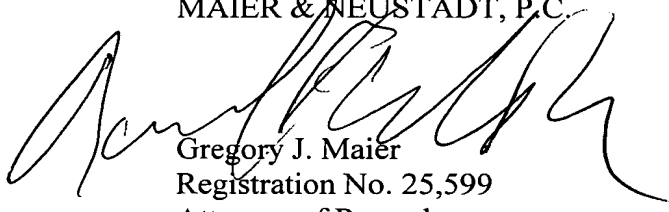
Finally, it is again noted that the outstanding Action improperly suggests that the remaining limitations of Claims 4, 6, 8-11, 13, 18, 20, 22-25 and 27 dealing with, for example, surface roughness, values of peak-to-peak voltages and frequencies, and the

protruding length of the thinning member, are all matters relating to optimizing KNOWN result effective variables because In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) is an appropriate citation of authority only relative to such optimizing of KNOWN result effective variables. However, it is clear that this reliance upon In re Boesch is erroneous as no evidence has been presented demonstrating that these variables were known to be adjustable to achieve any form of optimizing. In this regard, In re Antonie, 195 USPQ 6 (CPA 1977), cited in the last response, indicates that there must be a showing that the prior art recognized that the variable to be optimized was a result-effective variable. Because there has been no such showing here, there can be no optimization of a result-effective variable that would involve only routine skill in the art and the rejection as applied to Claims 4, 6, 8-11, 13, 18, 20, 22-25 and 27 is clearly in error and traversed for this reason as well.

In view of the fact that the outstanding Office Action fails to establish a *prima facie* case of obviousness relative to any of the rejected claims, and because no other issues remain outstanding, it is believed that the present application is clearly in condition for formal allowance and an early and favorable action to that effect is, therefore, respectfully requested.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read 'Gregory J. Maier', is written over the printed name and firm information.

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